

ACCIDENTS WITH MOTORCYCLES: A VIEW OF NURSES OF THE URGENT MOBILE CARE SERVICES

Acidentes com motocicletas: a ótica de enfermeiros do serviço de atendimento móvel de urgência

Accidentes con motocicletas: la vista de los enfermeros del servicio de atención móvil de urgencia

Edson Batista dos Santos Junior¹, João Breno Cavalcante Costa², Helton Silva Arcanjo³, José Reginaldo Pinto⁴

How to cite this article:

Santos ED, Costa JBC, Arcanjo HS, Pinto JR. Accidents with motorcycles: a view of nurses of the urgent mobile care services. Rev Fun Care Online. 2020 jan/dez; 12:400-405. DOI: <http://dx.doi.org/10.9789/2175-5361.rpcfo.v12.8324>.

ABSTRACT

Objective: to find out nurses' perception of the motorcycle accidents attended by the Sobral Emergency Mobile Service (SAMU). **Method:** this is a descriptive exploratory study, with a qualitative approach performed with nurses from the SAMU in the city of Sobral-Ceará, currently composed of eight nurses. **Results:** the results of the research show that the nurses of the SAMU, have knowledge about the praxis of the interurrences of the motorcyclists. In this sense, the links between the drivers without helmet and the imprudence in the traffic prevailed between the main morbidities; and among the main lesions, abrasions and fractures stand out as the most common injuries. **Conclusion:** it appeared that nursing performance is essential in any assistance process to the target population in prehospital care (APH), from the prevention of events to orientation and health education.

Descriptors: Traffic accidents; Motorcycle; Nursing; Prehospital care; Emergency medical service communication systems.

RESUMO

Objetivo: conhecer a percepção dos enfermeiros sobre os acidentes motociclísticos atendidos pelo Serviço de Atendimento Móvel de Urgência (SAMU) de Sobral. **Método:** trata-se de um estudo exploratório descritivo, com abordagem qualitativa realizado com enfermeiros do SAMU do município de Sobral-Ceará, atualmente composto por oito enfermeiros. **Resultados:** os resultados da pesquisa evidenciaram que os enfermeiros do SAMU, tem conhecimento sobre a práxis das intercorrências dos motociclistas. Neste sentido, a associação entre os condutores com a não utilização de capacete e a imprudência no trânsito prevaleceram entre as principais morbididades; e dentre as principais lesões, as abrasões e as fraturas destacam-se como mais comuns. **Conclusão:** evidenciou-se que a atuação da enfermagem

- 1 Doctoral student at Programa de Pós-Graduação em Cuidados Clínicos em Enfermagem e Saúde. Master pela Universidade do Estado do Rio Grande do Norte – Mossoró, RN.
- 2 Student of the Nursing Course. Graduate.
- 3 Student of the Nursing Course. Graduating.
- 4 Professor of the Nursing Course. PhD student in Collective Health from the University of Fortaleza - UNIFOR. Professor at the University Center INTA - UNINTA.

é imprescindível em todo processo de assistência à população-alvo do atendimento pré-hospitalar (APH), desde a prevenção de eventos à orientação e educação em saúde.

Descritores: Acidentes de trânsito; Motocicleta; Enfermagem; Atendimento pré-hospitalar; SAMU.

RESUMÉN

Objetivo: conocer la percepción de los enfermeros sobre los accidentes motociclistas atendidos por el Servicio de Atención Móvil de Urgencia (SAMU) de Sobral. **Método:** se trata de un estudio exploratorio descriptivo, con abordaje cualitativo realizado con enfermeros del SAMU del municipio de Sobral-Ceará, actualmente compuesto por ocho enfermeros. **Resultados:** los resultados de la investigación evidenciaron que los enfermeros del SAMU, tienen conocimiento sobre la praxis de las interurrencias de los motociclistas. En este sentido, la asociación entre los conductores con la no utilización de casco y la imprudencia en el tránsito prevalecieron entre las principales morbilidades; y entre las principales lesiones, las abrasiones y las fracturas se destacan como más comunes. **Conclusión:** se evidenció que la actuación de la enfermería es imprescindible en todo proceso de asistencia a la población objetivo de la atención prehospitalaria (APH), desde la prevención de eventos a la orientación y educación en salud.

Descritores: Accidentes de tránsito; Motocicleta; Enfermería; Atención pre hospitalaria; SAMU.

INTRODUCTION

Traffic Accidents are, among the external causes of death, responsible for many victims in Brazil and worldwide. The World Health Organization (WHO) in 2009 reported 1.3 million traffic accident deaths in 178 countries and estimated 1.9 million by 2020 if the global scenario does not change in terms of implementation of preventive actions.¹

In Brazil, in 2010, among external causes, deaths from traffic accidents occupied the second place.² That same year, accidents led to the death of 1.24 million people. Middle-income countries, with 72% of the world's population and 52% of the vehicle fleet, accounted for 80% of deaths, with 24% of deaths involving motorcyclists.³ The use of motorcycles as a means of transportation has increased rapidly in recent years, like accidents with this type of vehicle, making it a major cause of physical disability and death, especially among young men.⁴

Accident reduction is a major public health challenge and studies are needed to understand the true magnitude of the problem and the distribution of causes in order to prevent it and promote greater safety.⁵

In this sense, the performance of nurses is holistic and is not restricted to direct assistance, since besides providing relief to the victim outside the hospital environment, s/he also acts as an instructor, participating in the review of care protocols, preparing teaching material, besides acting as part of a multidisciplinary team in case of disasters and major accidents.⁶

Given this description, the relevance of this study is due to the need for early assessment of the causes of accidents. It is possible to develop strategies and action plans for education and health in SAMU to reduce the number of motorcycle accidents, thus becoming an instrument of study

and enabling decision-making by competent authorities, as well as seeking to sensitize drivers and society in general.

Based on this problem, the question is: Is nursing fulfilling its role in their prevention? Are nurses dealing with proper support in initial care? How should the management of these patients be organized? Do they have anything to note since they are mostly drunk or on other drugs? To answer this question, the following objective was elaborated: to identify the nurses' perception about motorcycle accidents attended by SAMU de Sobral.

METHOD

Descriptive exploratory study with a qualitative approach. The study included nurses who had more than two years of experience in the Service. Exclusion criteria were nurses who were on vacation or on leave during the data collection period and did not agree to participate in the research. Thus, the sample totaled eight nurses.

The research was conducted at the Mobile Emergency Care Service (SAMU), in the city of Sobral – CE. Sobral SAMU began operations on August 5, 2005. It is currently located at 340 Dr. Guarany Avenue, Derby district. The city of Sobral is located in the Northwest region of the state of Ceará, on the banks of the Acaraú River, has an area of 2,123 km² and a population of 181,010 inhabitants. Its distance from the capital is 224 km, with BR 222 and CE 362 as access roads to this location. The staff is composed of eight nurses. From January to November 2016, while the information was collected from August to September 2017.

The information collection instrument employed was a semi-structured interview applied individually to the participants. The semi-structured interview is a data collection technique that supposes a continuous conversation between informant and researcher and that should be directed by the researcher, according to their objectives.⁷ The information was analyzed according to the thematic analysis of Taquette and Minayo.⁸

All ethical aspects of the research involving human beings were in line with the recommendations of Resolution 466 of December 12, 2012.⁹ The research presented minimum risks for the participants, offering a calm and welcoming environment for the interviews, respecting the decision of withdrawal of the research subject at any time, without prejudice to them, and ensuring the confidentiality of the information.

This study was approved by the Research Ethics Committee of the Vale do Acaraú State University (UEVA), under CAAE: 57194716.1.0000.5053, and obtained CEP approval, number: 1.633.582. The recommendations of Resolution 466 of December 12, 2012, which provides for research guidelines involving human subjects, were observed.

RESULTS

The nurses interviewed in the study working in the mobile emergency care service (SAMU) were eight in total. Among them 63% were female and 37% male. In terms of age group 33% of those who work at SAMU were between 20 and 30

years old, 13% of these professionals were between 31 and 40 years and finally 50% were between the ages of 41 to 50 years. The nurses' experience time was analyzed based on the following categories: 2 to 5 years; 5 to 10 years; and over 10 years. We found that 50% of participants had 2 to 5 years of experience at SAMU. No research participants had experience between 5 and 10 years. The other 50% of respondents had more than a decade of experience in the service. After tabulating the interviews, we identified that 42% of nurses have concluded urgency and emergency professional development courses, 32% of nurses have completed short courses, 21% of respondents have specialization courses in urgency and emergency and only 5 % of participants have completed residence in urgent care and emergency.

From the qualitative analysis of the data obtained, four categories emerged: Main injuries occurred in motorcycle accidents attended by SAMU nurses; main nursing procedures performed by SAMU nurses in victims of motorcycle accidents; Difficulties faced by SAMU nurses when treating victims of motorcycle accidents and Use of safety equipment by motorcycle accident patients treated by SAMU nurses.

Main injuries in motorcycle accidents attended by SAMU nurses

According to nurses' perception, abrasions and fractures stand out as the most common injuries. In fractures, limbs were cited as the most affected body parts. The trauma that an individual suffers during a motorcycle accident is usually of major proportions, due to the most vulnerable bodily exposure to the environment, and the driver, in most cases, gets little or no protection. That information can be observed in the testimonials below:

[...] In these types of accidents, limb fractures, clavicle fractures, and multiple trauma and traumatic brain injuries are widely observed. (Nurse I, II and IV)

[...] Lower and upper limb fractures. We have sometimes caught very serious patients with suspected severe brain trauma, very serious abdominal injuries. (Nurse III)

[...] Patients with severe head trauma and limb fractures, especially in long bones, such as femur fracture. (Nurse V and VII)

[...] Fractures in extremities and exposed in lower limbs. There are also many cases of traumatic brain injury. (Nurse VI and VIII)

For motorcyclists, limbs are precisely the most vulnerable regions, as safety equipment provides protection to the head region only. Road traffic injuries vary greatly depending on the trauma kinematics in each situation. In the case of motorcycles, the collisions are usually front, side or rear. Falls also play an important role in the occurrence of injuries.¹⁰

Brazil, becoming increasingly chaotic in terms of urban mobility, needs to adjust to allow more quality and safety for motorcyclists and traffic users in general. Epidemiology, particularly in situations involving the need for better hospital infrastructure, is essential to understanding the demand for accident-injured patients. Emergency services should be aware of the most common situations to provide adequate service to traffic victims. While efforts to minimize the consequences of an accident must be continually improved, those aiming to prevent and control accidents through social welfare, should be prioritized.¹¹

Main Nursing Procedures Performed by SAMU Nurses in Motorcycle Accident Patients

The nurses reported that they first aim to stabilize the biological needs of the individual considered basic and fundamental for the survival, besides avoiding possible sequelae, and for this, they follow protocols:

[...] Immobilizing this patient in the right way and identifying causes that lead to instability. Our intention is for this patient to leave this service with as few sequelae as possible. (Nurse I)

[...] Usually we do the immobilization with rigid plank, straps and cervical collar. When we have trauma, we also use immobilization on the extremities. We also make venous access to replenish liquids and offer oxygen. (Nurse II, IV, V and VII)

[...] It goes from immobilization to venous access placement. When performing bandages and resuscitation maneuvers, should he ever stop, taking the patient safely to the nearest hospital with the minimum possible sequelae. (Nurse III)

SAMU assistance is sometimes performed quickly, due to systematic approaches and the result of teamwork. Nursing Care Systematization (SAE) is highlighted as an important tool in the care of these individuals, as it allows better communication among the team members, preventing errors and unnecessary repetitions.¹²

For the provision of this care, nurses follow the ABCDE protocol, created by health professionals from Prehospital Trauma Life Support (PHTLS). This protocol provides guidance for assessing the trauma patient, following a sequence that enables effective prehospital care. The protocol consists of: "A" (Airway) - airway opening and cervical spine control; "B" (Breathing) - Breathing and ventilation; "C" (Circulation) - circulation and bleeding control; "D" (Disability) - disability / neurological examination and; "E" (Expose) - victim exposure and protection against the environment. These procedures indicate the priority of care and direct the nurse, reminding them to not perform wrong procedures in patient care, thus contributing to a careful and safe care.¹³

Difficulties faced by SAMU nurses when serving victims of motorcycle accidents

Most of the nurses reported not having difficulties in approaching and assisting the injured and associate this safety with the length of stay in the service and the professional experience acquired. Professional experience, institutional involvement and stability gained by length of service are factors that encourage professionals to remain in an organization.¹⁴

[...] For my part I have no difficulty, because it is something that I have experienced for a long time, it is eleven years. We can be sure of what to do. (Nurse I, IV and VIII)

[...] The biggest difficulty is when the population gets in the way of removing the patient without proper immobilization. (Nurse II)

[...] The population does not help! Because our workspace is sometimes invaded, and people don't understand that we need that space to work and that makes it very difficult. (Nurse, V, VII and III)

[...] The biggest difficulty is even when the patient is very serious and the population is doing inappropriate filming and photographs, even making it difficult for us to take a more intense approach. (Nurse VI).

According to the interviewees one of the major difficulties comes from the interference of the population. Onlookers sometimes invade the scene of the accident before the team arrives in an attempt to help the injured, removing them and increasing the risk of irreversible sequelae.

The difficulty in preserving the patient's identity is another challenge reported. Acting ethically and efficiently while caring for patient, even within the limitations imposed by the environment and the situation, is a challenge for professionals working in the prehospital mobile service. We define competence as a practical and social characteristic, which helps the subject who learns to use the knowledge in operative and existential situations, allows him/her to work with complex situations and challenges, closer to real situations that allows to continuously develop critical reflection.¹⁵

Use of safety equipment by motorcycle accident patients treated by SAMU nurses

The study nurses state that in the vast majority of accidents, the victims were not wearing their helmets, which is the only protective equipment worn by motorcyclists.

[...] Usually they do not wear the helmet and end up becoming a serious patient. (Nurse II and IV and V)

[...] They don't use it because they always think that "with me it can't happen", especially those who are drunk. Drunk people, they have no concept of danger. (Nurse III)

[...] If they are awake and oriented, the population removes the helmet and the patient from the place, immobilizing them inappropriately, such as sitting or standing up. (Nurse VI)

[...] Most do not use the helmet and when they wear, we observe that it was removed because it has no strap. (Nurse VII)

This statement is also supported by the analysis of the previous questions, where helmet removal procedures are considered sporadic and traumatic brain injury as one of the main injuries in the victims. Addressing motorcycle crash deaths will require more than improving the risk of collision and the use of helmets (although these are always necessary). If the transition to development has caused the problem, manipulating the characteristics of this transition may provide the large-scale solutions needed to reduce the epidemic.¹⁶

The studies also found that there are differences between helmet types and impact protection to the brain. These reveal that full face helmets are more effective. Imposing stricter rules regarding the use of safety equipment and limiting the numbers of passengers can be implemented to reduce the risk of fatalities in motorcycle accidents. In addition, more appropriate infrastructure to penalize offending riders could also reduce the frequency of violations of the law, such as riding without a helmet or a motorcycle license, which in turn, would reduce risk of motorcycle accidents.¹⁷

Motorcycle fatalities and head injuries are a significant public health concern. It is well established that wearing an approved motorcycle helmet reduces head injuries and that a universal motorcycle helmet law is associated with increased helmet use and fewer motorcycle injuries and fatalities.¹⁸ Despite this evidence, most US states do not have universal helmet laws, including Michigan.¹⁸

DISCUSSION

In the emergency room, the nurse must have knowledge and be able to make quick decisions regarding the diagnosis, becoming a mediator of care, thus reducing the risk of death in the victim. The nurse must act in an organized manner, with the ability to assign roles to each team member, performing actions in a logical sequence.¹⁹

One observation made by nurses is the removal of the helmet of the victims of motorcycle accidents. The helmet removal technique should be a constant procedure in these occurrences, as it should only be done by trained professionals, since removing it from motorcyclists after the accident are high-risk actions, because simply removing them incorrectly

can aggravate existing injuries. However, the nurses chose this procedure as sporadic, due to the fact that drivers are no longer wearing helmets upon arrival of the team. This may be due to the rider not using safety equipment, being ejected during the accident, or being removed by the population.

Improper use of some protective equipment and negligent use by drivers is associated with a high rate of injury. The use of helmets appears to be the only motorcycle safety device recognized worldwide as an effective method to minimize the effects of head injury. Importantly, in addition to helmets, the use of protective clothing such as reinforced shoes and leg guards should provide greater protection and therefore reduce the rates of injury, especially soft tissue injury.²⁰

In 1998, a new traffic code came into force in Brazil, establishing stricter penalties for motorcycle users who do not wear a helmet during the ride. The study assessing the effect of this measure reported a significant increase in the rate of helmet use among traffic victims, from 31.2 to 66.2%, and a reduction in the number of injuries in the period following the implementation of the new legislation.²¹

The Motorcyclists Association includes 12 items for the safety of motorcycle users, including the use of the helmet approved by Inmetro; trousers and jacket of sturdy fabric, preferably leather; reinforced boots or toads and preferably leather gloves.²²

Although accident prevention should be the main goal of traffic campaigns, helmet use among motorcyclists should be especially encouraged, as this equipment is effective in preventing brain injury and reducing sequelae, hospital costs and deaths from such accidents.²¹

FINAL CONSIDERATIONS

As an integral part of the interdisciplinary health team, nurses are increasingly assuming prominent positions in providing care to patients in emergency situations, being appointed as the appropriate professional to take care of case management and urgent and emergency situations.

In this sense, we observed that nursing performance is essential in the whole process of assistance to the target population of the PHC, from the prevention of events through guidance and health education, to the assistance to injured motorcyclists.

This study made it possible to broaden knowledge about the role of nurses in mobile care and the need for specific and updated training to fully perform their function.

It was found that nurses with longer working time have less training in the area than those with less time. Alcohol use and recklessness were elected as the main causes of accidents. According to nurses, most of the time motorcyclists are not fit to drive the motorcycle, and many do not use safety equipment.

The main injuries identified were limb fractures associated with abrasions and Traumatic Brain Injury. The main initial procedures performed include the primary evaluation and the immobilization of the victims. As for the difficulties, there was a lack of common sense of the population that hinders

the care on public roads. Finally, we observed that there is no educational work performed by nurses of the service aiming at the prevention of accidents, leaving the nurse with only the assistance part.

It also allowed the observation that the perception of nurses in prehospital care has not been given due importance to in the scientific community, because, despite an intensive and detailed search, there is still a lack of specific studies on this issue, with this being the main limitation of the study.

Therefore, it is necessary to broaden discussions about the care provided by nurses to patients in mobile PHC services, so that workers can take a critical stance on their work process, becoming, together with patients and managers, protagonist of fundamental reorganization in planning of emergency care in the municipality.

Future research should include a larger number of SAMU professionals, seeking to identify the perception of other categories, such as doctors, nursing technicians and rescuers who also deal daily with this kind of accident.

REFERENCES

1. Santos SMJ, Souza MA, Rocha FL, Souza VP, Muniz MAS, Rodrigues JA. Caracterização dos fatores de risco para acidentes de trânsito em vítimas atendidas pelo serviço móvel de urgência. *Rev enferm UFPE on line* -ISSN: 1981-8963, v. 10, n. 10, p. 3819-3824, 2016.
2. Brasil. Lei no 12.760, de 20 de dezembro de 2012. Altera a Lei no 9.503, de 23 de setembro de 1997, que institui o código de trânsito brasileiro [Internet]. *Diário Oficial da República Federativa do Brasil, Brasília (DF)*, 2012 [accesses on June 7 2018]. Available from: <http://www2.camara.leg.br/legin/fed/lei/2012/lei-12760-20-dezembro-2012-774812-publicacaooriginal-138431-pl.html>.
3. Diniz EPH, Pinheiro LC, Proietti FA. Quando e onde se acidentam e morrem os motociclistas em Belo Horizonte, Minas Gerais, Brasil. *Cad. Saúde Pública* [Internet]. 2015 Dec [cited 2018 Nov 01]; 31(12): 2621-2634. Available at: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0102-311X2015001202621&lng=en.
4. Oliveira NLB; Souza EM; Cunha GZ. Mortalidade de motociclistas em acidentes de trânsito: Tendência Temporal Entre 1997 E 2012. *Cienc Cuid Saude*, v. 16, n. 1, 2017.
5. Ribeiro EL; Júnior JCRS; Azevedo FHC. Produção científica acerca dos acidentes de trânsito no Brasil. *Saúde em Foco*, v. 1, n. 2, p. 149-166, 2014.
6. Santos FC, Pinto JR, Vieira LJES, Ferreira Junior AR. Atendimento a vítimas de acidentes por motocicletas, pela equipe de enfermagem, em hospitais de pequeno porte. *Saúde. com*, v. 13, n. 2, 2017 [acesso em 10 ago 2018]. Available at <http://periodicos2.uesb.br/index.php/rsc/article/view/458>.
7. Bauer MW; Gaskell G. Pesquisa qualitativa com texto, imagem e som: um manual prático. Editora Vozes Limitada, 2017.
8. Taquette SR; Minayo, MC. Analysis of qualitative studies conducted by physicians and published in Brazilian scientific journals between 2004 and 2013. *Physis: Revista de Saúde Coletiva*, v. 26, n. 2, p. 417-434, 2016.
9. Brasil. Resolução 466/2012. Diretrizes e normas regulamentadoras de pesquisas envolvendo seres humanos. Ministério da Saúde/Conselho Nacional de Saúde, Brasília, 12 dez. 2012.
10. Batista FS, Silveira LO, Castillo JJAQ, Pontes JE, Villalobos LDC. Perfil Epidemiológico das Fraturas Extremas em Vítimas de Acidentes com Motocicleta. *Acta Ortopédica Brasileira* 23.1. 2015: 43-46. PMC . Rede. 10 de setembro de 2018 [accessed on 10 ago 2018]. Available at <http://www.redalyc.org/pdf/657/65738325009.pdf>.
11. Koizumi MS. Acidentes de motocicleta no município de São Paulo, SP, Brasil. *Análise da Mortalidade. Rev Saúde Pública*. 1985; 19 (6): 543-555. [PubMed]
12. Maria MA; Quadros FAA; Grassi MFO. [Systematization of nursing care in urgency and emergency services: feasibility of implementation]. *Rev Bras Enferm* [Internet]. 2013.

13. Soares VFR, Dantas DV, Dantas RAN, Costa IKF, Leite JEL. Atuação do enfermeiro no atendimento à criança vítima de trauma: revisão de literatura. *Carpe Diem: Revista Cultural e Científica do UNIFACEX* [Internet], v. 13, n. 1, p. 125-135, 2015 [access on 10 ago 2018]. Available at <https://periodicos.unifacex.com.br/Revista/article/view/643>.
14. Dias MSC; Paula MAB; Silva Morita, ABP. Artigo Original 1-Perfil Profissional de Enfermeiros Estomaterapeutas Egressos da Universidade de Taubaté. *Revista Estima*, v. 12, n. 3, 2016.
15. Oliveira SS. Deliberação moral da enfermeira no cuidado pré-hospitalar à luz da fenômeno-nologia social. 2014.
16. Janneke Berecki-Gisolf, Vasooontara Yiengprugsawan, Matthew Kelly, Roderick McClure, Sam-ang Seubsman, Adrian Sleight. The Impact of the Thai Motorcycle Transition on Road Traffic Injury: Thai Cohort Study Results. Ed. Jake Olivier. *PLoS ONE*10.3 (2015): e0120617. *PMC*. Web. 11 Sept. 2018.
17. Tavakoli KA, Rabiyeian R, Besharati MM. Modelar o efeito das características do operador e do passageiro no risco de fatalidade de acidentes de motocicleta. *Revista de Investigação de Lesões e Violências*. 2016; 8 (1): 35-42. doi: 10.5249 / jivr.v8i1.650.
18. Administração Nacional de Segurança no Trânsito Rodoviário. Motocicleta Helmet Use em 2014: geral resultados fatos de segurança de tráfego. Departamento de Transportes dos EUA; Washington, DC: 2015. Nota de pesquisa. Relatório No. DOT HS 812 110. [Ref. list]
19. Instituto de Seguros para Segurança Rodoviária. Autor; Arlington, VA: 2016c. Mar 2016, [access: 16.03.16]. Uso de capacete de motocicleta. Available at:<http://www.iihs.org/iihs/topics/laws/helmetuse?topicName=motorcycles>
20. Botarelli FR. Conhecimento do enfermeiro sobre o processo de cuidar do Paciente com traumatismo cranioencefálico. 181f. 2010. Dissertação (Master in Nursingm) -Universidade Federal do Rio Grande do Norte, Natal, 2010.
21. Gorios C, Armond JE, Rodrigues CL, Pernambuco H, Iporre RO, Colombo-Souza P. Analysis of hospitalization occurred due to motorcycles accidents in São Paulo city. *Acta ortop. bras.* [Internet]. 2015 Aug [cited 2018 Nov 08] ; 23(4): 212-214. Available at:http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1413-78522015000400212&lng=en.
22. Liberatti CLB. Acidentes de motocicleta em Londrina: estudo das vítimas, dos acidentes e da utilização de capacete [Masters Dissertation]. Londrina: Centro de Ciências da Saúde/Universidade Estadual de Londrina; 2011.
23. Seerig LM. Motociclistas: Perfil, prevalência de uso da moto e acidentes de trânsito-Estudo de base populacional. 2012. Dissertação de Mestrado. Universidade Federal de Pelotas.

Received in: 22/11/2018

Required revisions: 15/05/2019

Approved in: 22/07/2019

Published in: 23/03/2020

Corresponding author

Edson Batista dos Santos Junior

Address: Rua Orgendina Gomes, 1358, Renato Parente
Sobral/CE, Brazil

Zip code: 68980-000

E-mail address: fmfernandescb@gmail.com

Telephone number: +55 (86) 99412-8071

**Disclosure: The authors claim
to have no conflict of interest.**